

PREFACE

This dissertation comprises four chapters in which an attempt has been made to present the work carried out on the subject consistent with the development of the topic concerned. In chapter one, The introduction to ferrites, Crystal structure, hysteresis behaviour, domain structure, magnetic properties, Neels theory of ferromagnetism, Yafet - kittel theory, application of ferrites, data on Ni, Zn and Cu ferrites, orientation of the present problem are discussed.

Chapter Two is divided into four parts part A deals with the synthesis techniques, synthesis of ferrites by chemical route, oxalate coprecipitation technique employed in the preparation of $Zn_{0.6}Ni_{0.4-1}Cu_xFe_2O_4$ Ferrites part B deals with X-ray diffraction of the samples, part C deals with microstructure studies.

Chapter Three deals with the magnetic properties, In part A, A.C. susceptibility studies are reported, part B, magnetic hysteresis is discussed, in part C initial permeability studies are undertaken. Variation of μ_i , μ' and μ'' with temperature and frequencies are studied, Loss factor studies are undertaken.

In the chapter four discusses summary and conclusion of this work.

The theoretical as well as experimental results are illustrated with appropriate figures and tables. A list of references is given at the end of each chapter.